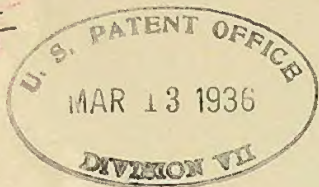


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Marks POLARIZING BIPLATES



WIDE ANGLE POLARIZATION

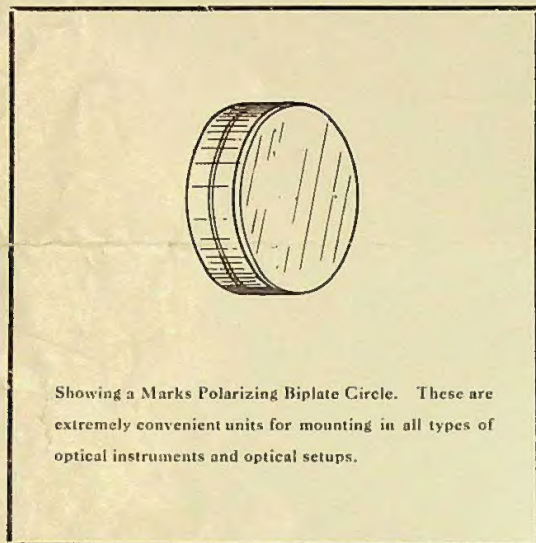
A 120° cone of light may be passed through the aperture of a mounted Marks Polarizing Biplate and the polarization is equally effective at all angles of incidence. When this is compared with the 19° cone that is usual with the Nicol Prism, it is evident that far more light can be gathered from a given source and polarized by this new means. The optical system may therefore be shorter when using the Marks Polarizing Biplate.

COMPLETENESS OF EXTINCTION

Two Marks Polarizing Biplates arranged with their planes of polarization at right angles extinguish all but approximately 0.6% of the light impinging on the first Biplate. When the two Marks Polarizing Biplates are placed with their planes of polarization coinciding, approximately 25% of the light incident on the first Biplate is transmitted. One Marks Polarizing Biplate is approximately 35% transparent to ordinary light.

POLARIZATION THROUGHOUT THE ENTIRE VISIBLE SPECTRUM

The 0.6% unextinguished residual contains somewhat of a predominance of blue light. When looking through a Marks Polarizing Biplate at ordinary white light the polarizing film appears colorless. This is also true of two Marks Polarizing Biplates arranged with their planes of polarization coinciding. When the planes of polarization of two Marks Polarizing Biplates are at right angles, the aperture of the second Biplate appears black, but if the source of light is strong enough to make the unextinguished residual appreciable to the eye, the appearance of the second aperture is blue black.



A Marks Polarizing Biplate consists of two Marks Polarizing Plates with their polarizing films placed together, the planes of polarization thereof coinciding, and a transparent medium placed between these films. Each Marks Polarizing Plate consists of a glass plate with a polarizing film on one face. Thus the Biplate contains two polarizing films between two protecting glass plates, and the combination may be securely mounted in a brass holder; or the Biplate can be obtained as a circle, not mounted in a holder.

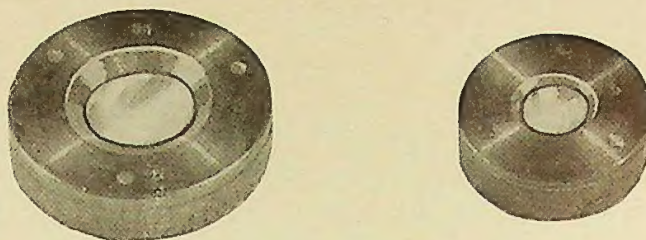
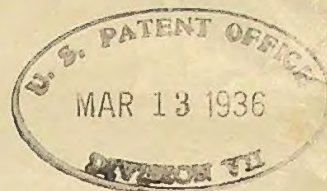
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Marks Polarizing Biplates-Continued



Actual Size

Illustrating compact mounted form of Marks Polarizing Biplate in apertures of 16 mm. and 10 mm.

The compact mounted Biplates shown above are very convenient units for use in making set-ups, especially for experimental work where a standard unit aids the flexibility of the work. It may be

used in polariscopes, photoelastic apparatus, Kerr cells, on optical benches for classroom demonstrations of the principles of polarized light, etc.

USES

The Marks Polarizing Biplate is recommended where completeness of extinction is wanted. Whereas the Biplate might not be a substitute for the Nicols prism in all cases, it will prove quite satisfactory for most purposes and actually in comparison has many advantages: 1—It is comparatively inexpensive; 2—It is available in relatively large areas; 3—It is thin and compact and more readily mounted; 4—Polarized rays are transmitted through it at all angles of incidence, whereas only a 19° cone can be passed through a Nicols prism. All colors seen in photoelastic work or in the examination of crystals appear quite as satisfactorily as through the Nicols. Hence, the Biplate is well suited for the polarizing microscope, the polariscope, photoelastic apparatus and many other instruments.

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